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ABSTRACT

A description of the basic elements of a research based instructional system for educational personnel development for vocational programs is presented in this report. This description indicates how the system derives inservice competencies for teachers from pupil performance and eventually results in institutionalized change in preservice teacher education programs. The seven basic elements (all based on research studies) from which the instructional system was derived are described in separate sections: Performance Catalogs from V-TECS/DELTA (Vocational-Technical Education Consortium of States/Designing Educational Learning from Task Analysis); Relating the Pupil to the Curriculum; Analysis of Teaching-Learning Activities Systems; The Instructional Supervision Training Program; Management by Objectives; Management Information Systems; And Teacher Education Modules. The last two sections of this report are a discussion of the systemic design for uniting the research based elements and of progress in the development of the delivery system for performance based instruction. Although the document reflects Alabama's educational concerns, procedures and activities are applicable to other State educational settings. (SH)

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PERFORMANCE BASED INSTRUCTION

THE DEVELOPMENT OF RESEARCH BASED TEACHER-LEARNING ACTIVITIES SYSTEMS

FOR

VOCATIONAL EDUCATION IN THE STATE OF ALABAMA

Prepared for the
Division of Vocational Education
Alabama State Department of Education
for
Educational Personnel Development

March, 1976

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Background for the Development of the Research Based Teacher-Learning System

The Division of Vocational Education of the State of Alabama has been attempting to move into programs of performance based instruction based upon a systemic adaption of research findings in all service areas in vocational education. Performance based instruction based upon research findings can provide relevant vocational instructional programs for students throughout the State. For the past two years, the State has engaged in extensive, continued educational personnel development for the training of vocational leadership among state staff; teacher educators; local vocational directors; and instructional personnel in the elements of the research based system.

During the 1975-76 year the EPDA Staff revised and utilized a State-of-the-Art publication which provided an informational base and established the need for vocational personnel development in performance based instruction through reviews of research which related to the utilization of curriculum materials, the development of competency based teacher education, the utilization of criterion referenced instruction, the improvement of conventional teaching skills, utilization of micro-teaching for pre-service teacher training and for teacher renewal in in-service teacher training programs. In addition the State-of-the-Art also dealt with related activities on both national and state levels such as the movement toward educational accountability, the establishing of Postsecondary 1202 Commissions, and the development of the National Network for Curriculum Coordination in Vocational-Technical Education.

After educational leadership, composed of a task force of teacher educators, State Staff and local vocational directors, had reviewed and studied the State-of-the-Art publication, the task force recommended that in addition to the research study a modified Delphi technique be utilized for the purpose of assessing educational personnel development needs.

A modified Delphi technique was utilized to survey approximately 169 local vocational administrators, presidents and deans of instruction of technical colleges. The highest priority for personnel development for local vocational administrators were:

- Development of skills in designing and implementing a vocational curriculum based on community needs, needs of business and industry, occupational demand and task analysis of incumbent workers. Such a curriculum would be competency based and would utilize systems approaches.
- Instructional supervision for improving teachers' instructional skills and stimulating teachers to improve themselves and the curricula.
- Evaluating curriculum and students' accomplishments.
- Systems analysis, writing objectives, management by objectives.
- Skill in establishing communication with faculty, students, parents, families and communities. Group dynamics.
- Individualizing instruction to meet the needs of the disadvantaged and the handicapped.
- Developing and implementing systems for improving counseling; being able to guide students according to their interests and abilities.

Approximately 100 vocational counselors were surveyed utilizing the same technique. The priorities for personnel development of the vocational counselors were:

- Development of skills in designing and implementing curriculum revisions that are based on occupational analysis and incorporate personal development, adjustment, and interpersonal relations. Curriculum revisions should include development of behavioral objectives and individualized instruction.
- Establishing communication skills with teachers, administrators, students, and parents, especially parents of exceptional children.
- Conducting workshops and in-service programs in new trends, techniques, and organization for teaching.
- Planning and implementing a total student counseling and evaluation program.

With the research study, *Performance Based Instruction: Curriculum Development in Vocational Education* completed, and having completed the needs assessment recommended by the task force, an additional group of vocational educators and state vocational staff was assembled to develop a research based system for educational personnel development for vocational programs in the State of Alabama. After the system had been designed this same group was to assist in planning a delivery system for developing and implementing performance based instruction in all service areas and at all levels of vocational education programs in the State, including teacher education for both pre-service and in- service education.

This group worked closely for eighteen months in developing what has been named "A Systemic Adaption of Research Findings for Performance Based Instruction". A description of the basic elements of the system indicates how the system derives in-service competencies for teachers from pupil performance and eventually results in institutionalized change in pre-service teacher education program.

Description of the Research Based System for Performance Based Instruction

The system for performance based instruction has been derived from seven basic elements, all based on research studies:

1. Performance Catalogs from V-TECS/DELTA
2. Analysis of Teaching-Learning Activities Systems
3. Relating the Pupil to the Curriculum
4. Managmenet by Objectives
5. Management Information Systems
6. The Instructional Supervision Training Program
7. Teacher Education Programs (Performance Based)

The system can be described as circular as presented in Figure 1. The competencies derived from each of the systems are interrelated, in fact, so interrelated that the description of one element in the system involves all other elements in the system. Teacher competencies have been derived from the various elements of the system and relate directly to pupil performance and pupil achievement. Educational personnel development is essential in each of the elements of the system in order that competencies may be acquired. Personnel development in any of the elements leads to competencies in other elements of the system; therefore, participants, as they receive training in the various elements, can define personnel development needs as they become proficient in other parts of the system or sub-systems.

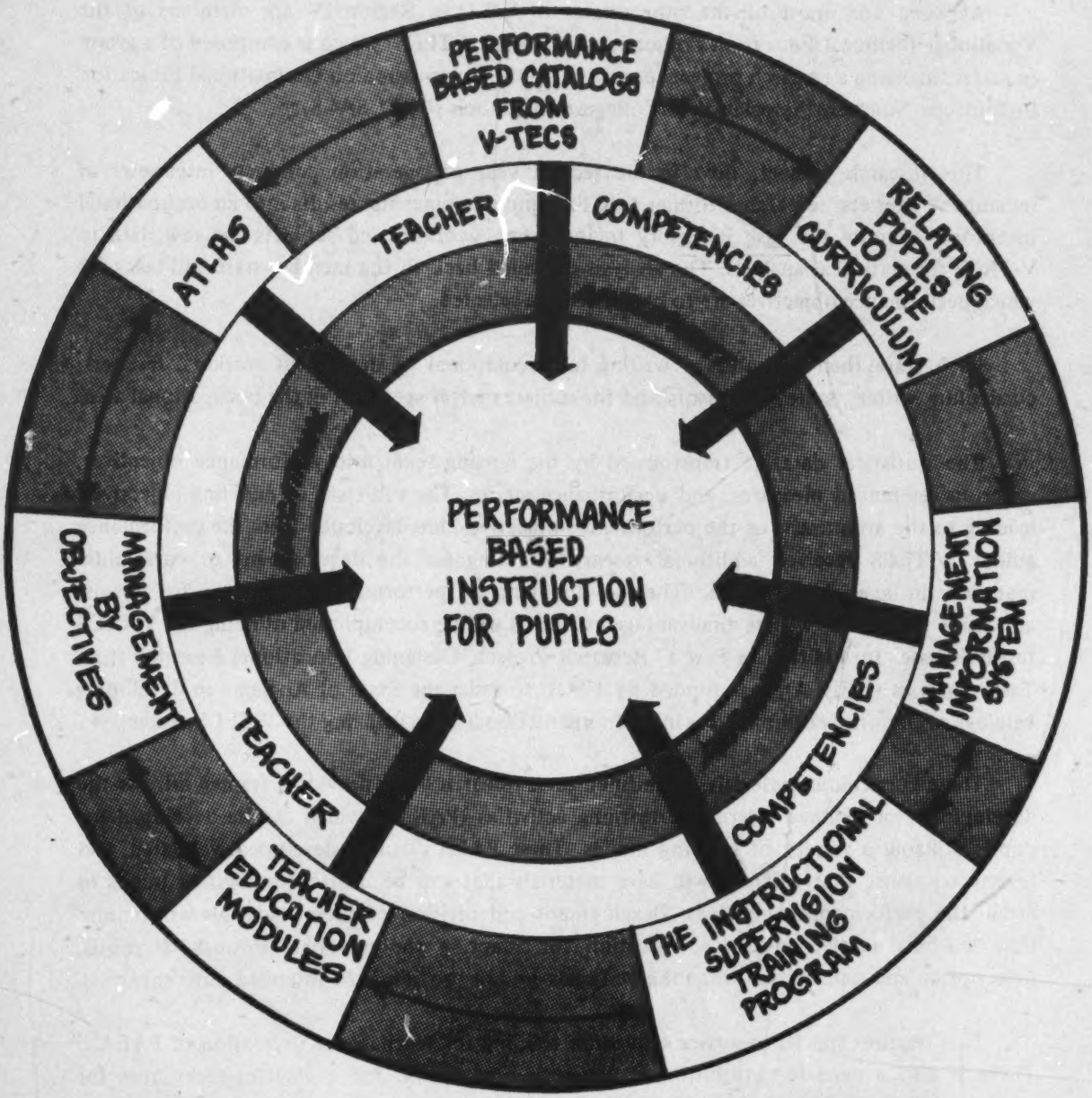

PERFORMANCE BASED CATALOGS FROM V-TECS
RELATING PUPILS TO THE CURRICULUM
MANAGEMENT INFORMATION SYSTEM
THE INSTRUCTIONAL SUPERVISION TRAINING PROGRAM
TEACHER EDUCATION MODULES
MANAGEMENT BY OBJECTIVES
ATLAS
TEACHER
COMPETENCIES
COMPETENCIES
TEACHER
PERFORMANCE BASED INSTRUCTION FOR PUPILS

Figure 1

PERFORMANCE CATALOGS FROM V-TECS/DELTA

Alabama and most of the other states in U.S.O.E. Region IV are members of the Vocational-Technical Education Consortium of States (V-TECS) which is composed of a group of states financing a research project sponsored by the Commission on Occupational Education Institutions, Southern Association of Colleges and Schools (COEI/SACS).

This research project, now in the second year of operation conducts interviews of incumbent workers, researches former task lists and combines the results into an occupational inventory, submits the task inventory to incumbent workers and subjects the raw data to V-TECS for statistical analysis. The analysis is mailed back to the member state and tasks for which performance objectives are to be written are selected.

Each state then assembles a writing team composed of incumbent workers, teachers, curriculum writers, state supervisors and the subject matter specialist in the occupational area.

The statistical data are transformed by the writing team into performance objectives, criterion referenced measures, and performance guides. The sub-tasks or enabling objectives, leading to the attainment of the performance objectives, are developed from the performance guides. V-TECS received additional research funding for the development of curriculum materials in special education. The development of performance objectives for special education students as well as disadvantaged students will be accomplished utilizing the V-TECS research base. In addition, a Part C Research Project, Designing Educational Learning from Task Analysis (DELTA), was funded by USOE to assist the State of Alabama in developing catalogs of performance objectives in seven instructional areas utilizing the V-TECS system.

These curriculum materials, established on a research base, provide a framework for the development of planned alternative learning activities (PALA's) which can be developed for pupils utilizing a variety of learning modes. These PALA's can be developed, validated, and revised to assure that teachers will have materials that can be utilized in assisting pupils to attain the performance objectives. Development and revision of these materials will require that teachers receive in-service education for adapting the materials through diagnosis, prescription and remediation when the materials are not providing the intended outcomes.

This requires special in-service education training for teachers for utilization of PALA's. There is also a need for utilization of diagnosis prescription and evaluative techniques for regular pupils as well as pupils with special educational needs in teaching to enabling objectives (performance guides) leading to the attainment of the performance objectives, particularly when the planned alternate learning activities do not meet the specific learning requirements of pupils.

State Vocational Staff and Vocational Teacher Educators have developed sample competencies for teachers in the utilization of the performance based catalogs for vocational programs as follows:

1. Using performance objectives, criterion-referenced measures and performance guides from the performance based catalog, develop a list of skills and knowledges essential for student achievement of the objective(s).

2. Using the list of skills and knowledges derived through analysis of a performance objective from the performance based catalog, arrange the skills and knowledges in the best sequence for instruction.

3. Using the list of skills and knowledges, develop enabling objectives essential to student achievement of the performance objective.

4. Using the previously developed enabling objectives, construct a criterion-referenced measure for each objective. The criterion-referenced measure must test the behavior specified in the enabling objective for which it was written.

5. Using the previously constructed enabling objectives and criterion-referenced measures, design a plan of instruction leading to the accomplishment of the objectives. The plan must reflect the following:

    1. Performance objective and criterion-referenced measure
    2. Enabling objective(s) and criterion-referenced measure(s)
    3. Lesson content
    4. Methods and media selection
    5. Student activities

6. Using the plan of instruction, develop an instructional unit(s) leading to the accomplishment of the objectives.

7. Using the instructional unit, conduct individual, small group and/or classroom activities and revise the instructional materials until a predetermined criterion has been met.

Supporting competencies have been compiled for each of the competencies listed above.

RELATING THE PUPIL TO THE CURRICULUM

Relating the pupil to the curriculum has three major sub-systems: Cognitive Style Mapping; Development of a Model for Vocational Evaluation of the Disadvantaged; and, The Alabama Occupational Information System.

SUB-SYSTEM ONE

COGNITIVE STYLE MAPPING

Dr. Derek N. Nunney and Dr. Joseph E. Hill at Oakland Community College, Bloomfield Hills, Michigan, have combined some seventeen years of research findings in the development of a system to reflect the ways in which a pupil learns. This system is called Cognitive Style Mapping. Information obtained from individual pupils is analyzed by the use of a computer to produce a tabular "map" of 84 traits that describe how each pupil thinks and learns - his/her cognitive style. The measured traits can produce 2,304 combinations that show how each pupil handles qualitative and theoretical symbols, how cultural influences affect the way he/she gives meaning to symbols, and how meanings are derived from perceived symbols. The pupil's family background, talent, life experiences, and personal goals are only a few of the facets of human makeup that are included in the cognitive style map of each unique pupil. A cognitive style map, in addition to identifying the ways in which a pupil can master an educational task most readily, provides a pupil self-knowledge essential for realistic career decisions. Using a pupil's cognitive style map, a trained team of counselors, teachers, curriculum specialists, and the pupil can develop a personalized education program geared to the pupil's strengths and weaknesses. Extensive in-service training, development and adaptation of the cognitive mapping system is required of this team in order to meet the specific learning requirements of pupils. Plans are under development for leadership training for educational personnel in the Cognitive Style Mapping sub-system.

SUB-SYSTEM TWO

DEVELOPMENT OF A MODEL FOR VOCATIONAL EVALUATION

OF THE DISADVANTAGED

Dr. Julian M. Nadolsky, Auburn University, developed a *Model for Vocational Evaluation of the Disadvantaged* in 1971 under the auspices of a research grant for the Social and Rehabilitation Service Division of HEW. The model fuses the psychological testing approach, the work sample approach, the situational approach and the job tryout approach in assisting pupils in assessing their needs for vocaitonal programs and related academic areas for job preparation. This sub-system attempts to better adapt a research based system into the job preparation functions of the Area Vocational Centers in order that pupils may be better prepared to enter the labor market.

SUB-SYSTEM THREE

ALABAMA OCCUPATIONAL INFORMATION SYSTEM

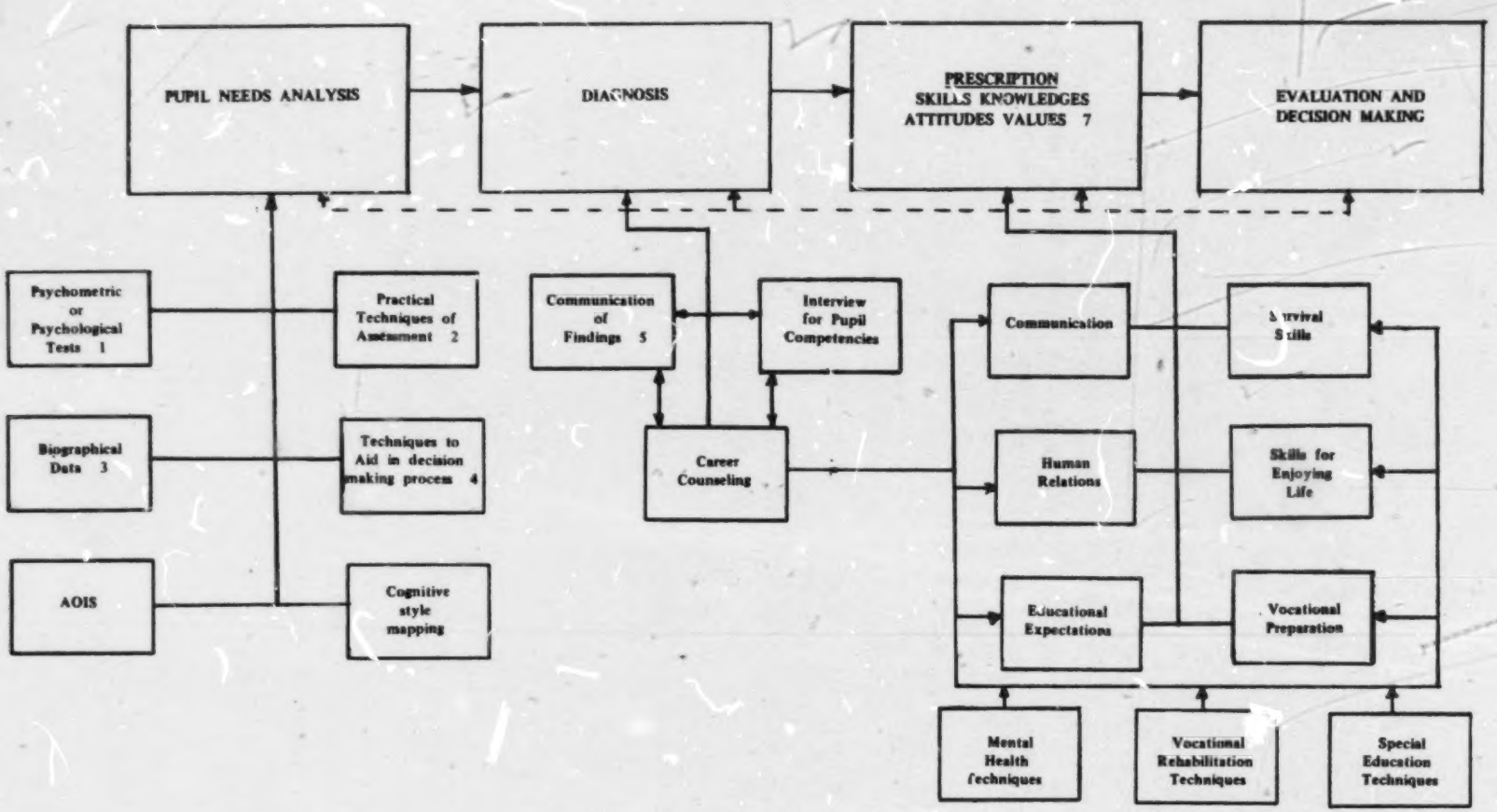
In addition to the two research systems delineated above for improving counseling and career guidance of secondary pupils, the State of Alabama has been funded by the Department of Labor for the development and implementation of the Alabama Occupational Information System (ACIS). AOIS provides extensive occupational and educational information via a computer terminal that is located in the user agency facility which may be comprised of schools, an employment service office, a prison pre-release center, or a rehabilitation center. Users have a guide which provides system accessing procedures in an easily understood format allowing the individual user to immediately retrieve information from eight available files. User interaction with AOIS results in a computer printout which belongs to the user and which can be utilized to interact and cross-index data for a complete career exploratory and planning experience. AOIS objectives are:

- To help students learn about and understand the range of career opportunities presently available and that are likely to be available in the future.
- To help entrants into the labor force become aware of occupations which they would find acceptable and personally satisfying.
- To encourage persons in the process of career exploration and decision-making to seek out vocational information on their own.
- To increase awareness of major sources of occupational information for the purpose of acquiring knowledge of occupations and training.
- To provide support for related programs including career education, career and employment counseling, and manpower and educational planning.

The fusing of the three sub-systems described, i.e. the Cognitive Style Mapping, the Model for Vocational Education of the Disadvantaged and the AOIS System, all research based systems, can and will provide a framework for career decision making and job preparation with placement. The techniques can also be utilized for providing programs which, combined with V-TECS, performance based curriculum materials for disadvantaged , handicapped or special education pupils as well as for all other pupils.

State Vocational Staff and Vocational Teacher Educators have attempted to fuse the three research based sub-systems into a single system for improving career development and relating the pupil to the curriculum. The fusion of the three sub-systems is presented in Figure 2.

SYSTEM DESIGN FOR RELATING PUPIL TO THE CURRICULUM



1
Psychometric or Psychological Tests
- Intelligence Tests
- Aptitude Tests
- Achievement Tests
- Interest Inventories
- Personality Inventories
- Other Tests

2
Practical Techniques of Assessment
- Standardized Work Samples
- Homemade or Understandardized Work Samples
- Job Tryouts with Community Employers
- Job Tryouts in Vocational Training Programs
- Job Tryouts on Jobs within Your Own Facility
- Other Practical Assessment Techniques
- Exploratory Experiences in the 15 USOE Occupational Clusters

3
Biographical Data
- Medical Data
- Social Data
- Psychological Data
- Educational Data
- Employment History
- Other Types of Biographical Data

4
Techniques to Aid in Decision Making Process
- The Interview to Verify Referral Information
- The Interview to Uncover New Information
- The Dictionary of Occupational Titles
- Other Sources of Occupational Information
- Job Analysis Data
- Check Lists or Rating Scales
- The Formal Case Conference
- Informal Conferences with other Staff
- Regular Follow-up procedures

5
Communication of Findings
- Communicate Findings Verbally to Appropriate Sources
- Communicate Findings Through a Written Report
- Narrative Report with a Listing of Objective Data
- Completely Narrative Report
- Check List Report with Summary & Recommendations
- Completely Check List Report

Figure 2

The system describes the needs analysis as the utilization of psychometric tests, practical techniques of assessment, biographical data, techniques to aid in the decision-making process, cognitive style mapping and the Alabama Occupational Information System.

When the needs analysis has been completed, the system describes the diagnostic aspect. At this point the counselor communicates the findings to the pupil for career decision-making utilizing the techniques outlined at the bottom of Figure 1. The pupil participates in outlining the skills, knowledges, attitudes and values that will be needed for the particular vocational area for which the pupil is preparing. At this point the counselor assists in developing with teachers those skills needed in the areas of communication (which includes mathematics), human relations, educational expectations, vocational preparation, skills for enjoying life and survival skills. Mental health, vocational rehabilitation, and special education techniques can assist in relating the curriculum to the pupil. Evaluation and decision-making is continuous providing feedback through the system for recycling.

Competencies for these three sub-systems have not been developed. Teacher Educators and State Staff are receiving in-service education preliminary to developing the competencies necessary for the system.

ANALYSIS OF TEACHING LEARNING ACTIVITIES SYSTEMS (ATLAS)

Dr. Madeline Hunter of the UCLA Laboratory School has headed several research efforts during the past six years in delineating those competencies which distinguish effective teaching from ineffective teaching. The competencies of teachers were obtained from factor analyses of research that had been consummated throughout the country. The results of the factor analyses were carefully studied; and, Dr. Hunter and her colleagues designed a process for in-service education of teachers for recycling teachers in the processes of effective teaching. The process has been named the *Teacher Appraisal Instrument* (TAI). Because of the connotation of the word "appraisal" and "instrument", the State of Alabama has renamed the process the Analysis of Teaching-Learning Activities Systems (ATLAS). The systematic process for recycling teachers through ATLAS, although complex, can be reduced to five major elements.

By identifying the decisions and actions in the process of successful teaching, Dr. Hunter analyzed with precision the factors which contribute to successful learning as well as factors which interfere with learning achievement. The process of successful teaching is the theory-based response to the following five questions which can be translated into performance behaviors in the teaching-learning activities system.

(1) Is the behavior of the teacher directing the students toward a perceivable objective?
(2) Is the objective at the correct level of difficulty and tailored to the characteristics of the learner?
(3) Does the teacher elicit and interpret overt behavior from the learner in order to choose alternatives when progress toward the objective is not evident?
(4) Are the time and effort of the teacher and learner consonant with the principles of learning?
(5) Are the time and effort of the teacher and learner dissonant with the principles of learning?

The process involves intensive/extensive in-service training. Approximately fifty teacher educators and members of the Alabama State Department of Education, Division of Vocational Education, received nine days of training in the ATLAS process in 1975. The process does provide the essential competencies with criterion levels appropriate for both pre-service and in-service teachers. For this reason, the process provides a framework for the development of competency based teacher education for both pre-service and in-service teachers in vocational education programs. The Alabama State Department of Education, in response to a State Board Resolution of 1972, requested that all teacher education programs move toward concepts of competency based certification as rapidly as possible. Because this recycling process and competencies in the ATLAS process are appropriate for all teachers, i.e., early childhood, elementary, secondary, vocational education, or higher education, it would appear that the process can provide both a product and process for competency based teacher education programs in the State of Alabama.

Because the second and third steps of ATLAS involve the engagement of pupils in learning activities with appropriate monitoring of objectives and diagnosis of the level of pupils in terms of the enabling objectives, it is imperative the teacher receive training in classroom interaction for the development of objectives, the development of observable behavioral instruments for analysis, and improvement of instruction. This classroom interaction for the development of objectives, the development of observable behavioral instruments for analysis, and improvement of instruction. This classroom interaction can be charted, particularly in relation to pupil diagnosis, intervening diagnosis and the monitoring of pupil learning through questioning techniques as well as competencies inherent in ATLAS, particularly the utilization of task analysis concepts for deriving enabling objectives utilization of task analysis concepts for deriving enabling objectives utilizing varied taxonomies, (Gagne' , Bloom, Simpson, Dave, the Experiential Taxonomy and the performance guides of the V-TECS System). The Flanders' System of Interaction Analysis has been carefully researched in terms of developing an objective behavioral instrument, and the Flanders' system utilized in conjunction with ATLAS, can provide a framework for the improvement of instruction through an instructional

supervision training program that is based on research. This training in ATLAS also provides a structure for training teachers in special education techniques because the diagnosis, prescription and remediation techniques apply to both regular and special education pupils in vocational programs.

Sample competencies for ATLAS, developed by State Vocational Staff and Teacher Educators, are as follows:

1. Provided a video-tape of a teacher teaching, write an anecdotal record of any portion of a lesson to gather data for use in a conference with a teacher. The anecdotal record should contain an analysis of the following elements:
   - 1.1 Write the objective for the lesson and locate the objective in terms of the hierarchy of Gagne' , Bloom, Simpson, the Experiential Taxonomy or the V-TECS performance guide.
   - 1.2 Write evidence that the teacher engages pupils in activities that monitor the learning of the objective.
   - 1.3 Write evidence that the teacher alters the enabling objective in terms of the level of achievement of the pupil.
   - 1.4 Write evidence that the teacher:
     - 1.4.1 Utilizes set induction
     - 1.4.2 Utilizes variables of the principles of motivation in establishing:
       - The degree of concern or tension
       - The feeling tone of the task
       - The degree of interest in the task
       - The knowledge of results
       - The relationship of the record or goal to the activity necessary to secure it
   - 1.5 Write evidence that the teacher utilizes reinforcement theory in establishing:
     - 1.5.1 Positive reinforcement (verbal)
     - 1.5.2 Negative reinforcement (verbal)
     - 1.5.3 Non-verbal reinforcement
     - 1.5.4 Cueing
     - 1.5.5 Extinction
     - 1.5.6 Proper reinforcement in terms of the objective sought
   - 1.6 Write evidence that the teacher utilizes retention theory in establishing:
     - 1.6.1 Meaning
     - 1.6.2 Degree of original learning
     - 1.6.3 Presence of feeling tone
     - 1.6.4 Positive and negative transfer
     - 1.6.5 Schedule of practice

1.7 Write evidence that the teacher utilizes principles of transfer

1.7.1 Relates what is learned to the situation in which the learning will be used

1.7.2 Checks the student's association with old and new learning

1.7.3 Checks the degree of effectiveness of the original learning

1.7.4 Checks the pupils perception of unvarying elements which exist in both old and new learnings

THE INSTRUCTIONAL SUPERVISION TRAINING PROGRAM

Teacher Corps commissioned the University of California at Santa Barbara to develop a systems approach to instructional supervision which would be suitable for working with Teacher Corps interns. This instructional supervision package, carefully researched and validated, utilizing objective, behavioral instruments described in Flanders' and ATLAS, for assisting teachers in improving instruction. The process of instructional supervision can assist teachers in analyzing instructional problems for improvement of classroom teaching.

Included in this training program are written information modules, exercises, self tests, playing activities, and an opportunity to demonstrate supervisory skills in an actual supervision situation.

The content of the training program is composed of two interrelated segments.

(1) KNOWLEDGE OF THE PROCESS OF INSTRUCTIONAL SUPERVISION. The participants learn the various components of Instructional Supervision, including the nature of the personal relationship between supervisor and teacher, the processes of providing feedback on classroom performance to the teacher, the delicate ways in which teachers can be helped to improve their teaching, the use of methods for systematic observation of classroom behavior, and the role of the supervisor in developing the teachers' competencies.

(2) SKILLS IN THE IMPLEMENTATION OF INSTRUCTIONAL SUPERVISION. The participants practice using selected skills, including the use of specific responses to facilitate clear communication between teacher and supervisor, the use of behavioral language to insure clear definitions of teaching problems and of their solutions, the various methods used to provide feedback about classroom performance to teachers, and the use of specific instruments to observe classroom behaviors.

The Instructional Supervision Process is an approach to the supervision of teachers which emphasizes both an open, collegial relationship between teacher and supervisor and a process for confronting instructional problems which utilize reality-based data from classroom observation. This method of supervision is based upon the belief that lasting improvement in

the capabilities of teachers will most effectively result from the proper use of a systematic process, which is practiced jointly by both supervisor and teacher in a supportive and non-judgmental relationship. The total Instructional Supervision Process is based on the following premises.

(1) Many instructional problems encountered by the teacher in the classroom can be resolved if the teacher changes his/her behavior in positive ways.
(2) The recognition of needed change in behavior must come from within the teacher and not be imposed from without.
(3) Teachers are not aware of many teaching-learning behaviors that exist in their classrooms.
(4) An increased awareness of the teaching-learning behaviors that exist in the classroom can help the teacher to recognize needed changes.
(5) Existing teaching-learning behaviors can be revealed to the teacher by the application of systematic classroom observation techniques.
(6) Because a teacher cannot easily apply systematic observation techniques to his/her own classroom while teaching, help from a trained observer is needed.
(7) The trained observer must present the observational results to the teacher in a manner which will allow the teacher to accept those results as valid, to internalize them, and to use them to identify needed instructional changes.
(8) Such acceptance and internalization are best achieved when the relationship between teacher and observer is characterized by co-operation and a non-threatening collegial environment.

These premises lead toward a procedure of instructional supervision which involves systematic classroom observation and feedback utilizing principles of interpersonal communication. The observation, feedback, and communication process utilized in the Instructional Supervision Process are developed in a progression of eight steps through four stages as presented in Figure 3.

Stage 1: PRE-OBSERVATION CONFERENCE BETWEEN SUPERVISOR AND TEACHER

Step 1: Behaviorally Define the Area of Concern.

The instructional supervisor attempts to clarify with the teacher the specific activity that concerns him/her in the classroom. This area of concern is defined in behavioral terms, so the supervisor can later observe the problematic teaching-learning behavior in the classroom.

THE INSTRUCTIONAL SUPERVISION PROCESS:
Practicum

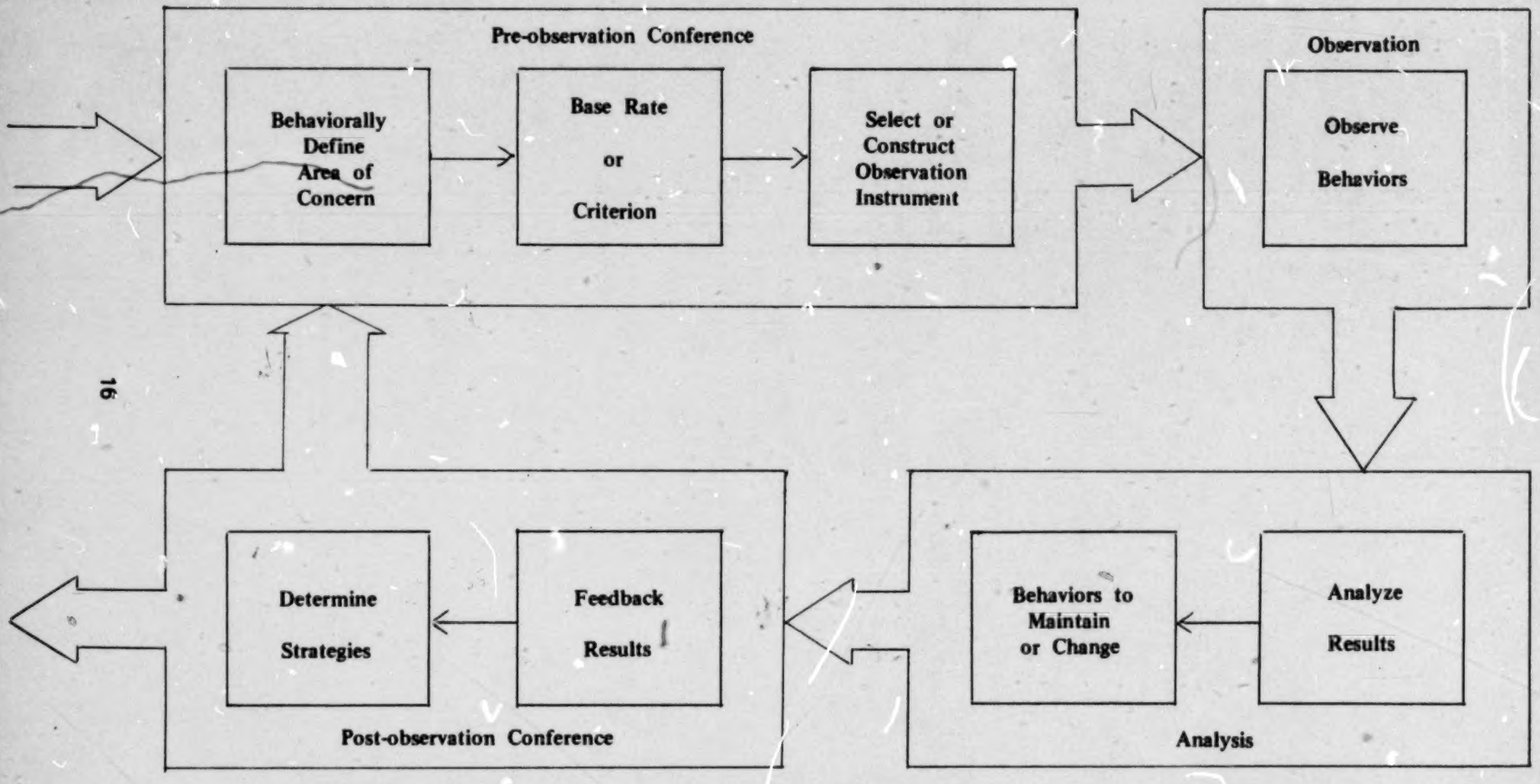


Figure 3

Step 2: Decide to Obtain a Base Rate or Set a Performance Criterion.

If it is the first time the supervisor and the teacher have worked through the process with this particular area of concern, the supervisor will decide to establish a base rate of behavior patterns in order to record what is actually happening in the classroom. If the supervisor and the teacher have previously worked through the process with a particular area of concern and are trying to further modify behaviors in order to remedy the situation, they establish a criterion which specifies the level of performance to be obtained.

Step 3: Select or Develop and Observational Instrument.

The supervisor suggests or develops an observational instrument to use in gathering data about the pattern of classroom behaviors related to the teacher's area of concern.

Stage II: OBSERVATION BY SUPERVISOR OF TEACHER'S CLASS

Step 4: Observe the Specified Behaviors.

The supervisor enters the teacher's classroom and, using the observational instrument decided upon in Step 3, records data through observation of the teaching-learning behaviors.

Stage III: ANALYSIS AND IDENTIFICATION OF CHANGE BY SUPERVISOR

Step 5: Analysis of the Observation Results.

The supervisor organizes the observation data into a clear "display" for feedback to the teacher. A complete analysis of this data is made to interpret the results of the observation. The supervisor then determines if the needed changes were accomplished, and if so, whether they have had the desired effect upon the area of concern.

Step 6: Identify Behaviors Needing Maintenance or Change.

Based upon the analysis in Step 5, the supervisor identifies those teaching behaviors that are negative and should be changed in order to remedy the teacher's problem; the supervisor also plans strategies for accomplishing these changes.

Stage IV: POST-OBSERVATION CONFERENCE BETWEEN SUPERVISOR AND TEACHER

Step 7: Feedback of the Data Results.

The supervisor reviews the agreements reached regarding the teacher's problem and how it was to be treated. The data obtained from the observation is then displayed to the teacher. The supervisor performs this focused feedback in a manner which allows the teacher to understand the data and to make a self analysis. Although the supervisor has previously analyzed the data, the results are not presented to the teacher. Instead, the supervisor skillfully guides and trains the teacher in making a self analysis.

Step 8: Determine Strategies

The teacher, with the supervisor's assistance, determines positive teaching behaviors to maintain, negative teaching behaviors to change, alternate strategies for accomplishing the desired changes, and the appropriateness of recycling. The determined strategies specify behaviors which the teacher will initiate, alter, or eliminate. The assumption is that, if the behavior is changed, the specified problem in the teacher's area of concern will be solved.

Sample competencies developed for the Instructional Supervision Training Program are:

1. Given a pre-observation conference setting, together with the teacher, identify and behaviorally define an area of concern.
2. Given a pre-observation conference setting, determine whether the establishment of a base rate or the setting of criteria is appropriate.
3. Given a pre-observation conference setting in which the establishment of criteria is appropriate, together with the instructor, identify criteria for the successful performance of a terminal goal; when such criteria are not realistically within the present capabilities of the instructor, identify criteria for the successful performance of intermediate goals.
4. Given a statement of a teacher's area of concern, adapt Flanders' Interaction Analysis System or ATLAS to an instrument for systematically recording the occurrence of teaching/ learning behaviors which may be related to the area of concern.
5. Given an instrument for systematically recording the occurrence of specific teaching/ learning behaviors, utilize the instrument to make nonevaluative observations in a classroom or laboratory setting.
6. Given the data resulting from the systematic observation of teaching/learning behaviors in a classroom or laboratory setting analyze the data by performing the following operations:
   - 6.1 construct a data display;
   - 6.2 make summary statements;
   - 6.3 where criteria of successful performance have been established, determine if the criteria have been met;
   - 6.4 identify patterns of behavior;
   - 6.5 make comparisons between behavior.
7. Given the results of an analysis of data from a systematic observation, identify:
   - 7.1 teacher behaviors that are positive in terms of their possible student effects and should be maintained;
   - 7.2 teacher behaviors that are negative in terms of their possible student effects and should be changed;

7.3 alternate strategies for producing changes in teacher behavior.

8. Given a post-observation conference setting and given the data from the observation and analysis, perform the following operations:
   - 8.1 review with the teacher the agreed upon area of concern, its behavioral definition, the decision to obtain a base rate or the criterion that was set, and the observational instrument;
   - 8.2 guide the teacher in any analysis of the observed data which will approximate the complete analysis obtained by the supervisor;
   - 8.3 assist the teacher in identifying behaviors which are positive in terms of their possible student effects and which should be maintained;
   - 8.4 assist the teacher in identifying behaviors which are negative in terms of their possible student effects and which should be changed;
   - 8.5 formulate with the teacher strategies for achieving the desired changes;
   - 8.6 determine with the teacher if additional cycles of the Instructional Supervision process are necessary.
9. Given a pre- or post-observation conference setting, establish clear communication between supervisor and the teacher by utilizing communication skills, such as paraphrasing, perception checking, asking clarifying questions, offering information, and active, attentive listening.
10. Given a pre- or post-observation conference setting, demonstrate the use of "freeing" and "binding" responses in order to encourage the growth of autonomous behavior in the in the teacher.

MANAGEMENT BY OBJECTIVES

Another element in the research based system for the development of performance based instruction in the State of Alabama is the development of a system of management by objectives. The State Department of Vocational and Technical Education in Oklahoma developed, researched and field tested, with federal assistance, a system of management by objectives which is suitable for social institutions.

The MBO system utilized in the Division of Vocational Education provides a way of setting goals, of determining priorities, of assigning responsibilities, and of measuring results. The system forces individuals at all levels in the Division to participate in the planning process. Every operating unit within the Division develops a set of goals and objectives to be achieved within an operating year. Every individual also develops a series of mutually agreed upon job functions and job objectives for that same year. While the flexibility of the MBO system allows for periodic and necessary adjustments, a basic work design of the total staff is determined and agreed upon at the beginning of the year. MBO is an effective management tool at any level.

The process of goal setting, objective identification, and individual job planning increases the effectiveness of vocational personnel at all levels in managing the educational process. The processes of the MBO system are connected in three major sub-sections. The organizational goals and objectives that set the direction for the Division and for each of the operating units within the Division are determined. The second section, individual job functions and job objectives, delineates for each individual the concentration of efforts toward certain specified and mutually acceptable results. The third part of the system is the performance review that provides the accountability necessary to determine success.

The development of the organizational goals and objectives originates with a mission statement. This is a broad statement of the basic purpose of the Division and is usually derived from a mandate set forth by law or legislation which created the agency. Relative to the mission statement is a series of long-range goals that are broad general statements of intent covering a number of years, usually not altered frequently and which are not quantifiable. The organizational objectives which set the direction for the entire Division are developed from the long-range goals. These objectives are measurable, both in quantity and quality and are set in specific time frames. After these steps are accomplished for the Division, objectives are developed for each of the units within the Division. The process emanates from top administration to lower units and is a gradual delineation of responsibility. Objectives for each of the units within the Division are written by those responsible for the work of that unit and negotiated with the top administrator. This provides for a clear definition of areas of responsibility and of needed coordination. After the major branches identify their area of responsibility and write specific measurable objectives, the units within each branch delineate their portion of the area of responsibility. In every instance, the administrator of the administrative level has the responsibility for indicating to his sub-ordinates where their responsibilities lie and the approval of objectives relating to those responsibilities. As objectives filter through the administrative structure, they become more specific and functions and activities become more clearly defined. Each objective must relate to an objective in the unit immediately above, and all objectives must eventually contribute to the achievement of the objectives and goals of the Division. Thus, all units are striving toward the same results but at levels of achievement set by the respective unit.

The second sub-section of the MBO system relates to personal accountability and is identified as individual job functions and job objectives which specify results for which individuals are accountable. Job functions are the major segments of an individual's work or those general areas within which an individual is held accountable for producing results. The job objectives are quantifiable statements that define the results expected of a person in each function within a specified period of time. In developing performance objectives, the individuals refer to the unit goals and objectives that were developed for their area of

responsibility. The unit goals and objectives provide the individuals with the guidelines of what the Division is trying to achieve and how he/she may contribute to the realization of these goals and objectives through performance objectives developed within the parameters of their job function. Each individual in the Division is held accountable for achieving specific performance objectives which contribute to and are directed toward the overall objectives, goals and mission statement of the Division.

The final stage for implementing an effective MBO system is the performance evaluation or review of the performance of each staff member in terms of how well previously established performance objectives have been accomplished. The performance evaluation allows the individual to receive regular consideration, find out where he/she stands, and provides a basis for improving performance. The supervisor has a basis for judging improved performance, making fair, consistent decisions, and counseling formally and informally with subordinates. The performance review alerts the supervisor to areas which need stimulation or assistance in achieving objectives and provides the Division with more objective performance data, a better knowledge of human resources, and a basis for accelerating staff development. The first step in reviewing performance is the monthly report which consists of a brief, typed resume of the objectives which are not being achieved on schedule and why. The quarterly performance review is a formalized, individual conference between each subordinate and his/her immediate supervisor. This conference is for discussing problems which may be hindering achievement, for setting goals, and for reviewing objectives for the coming quarter. The annual review operates in the same fashion but covers a full year's period time.

The MBO system: (1) provides specified directions for the Division of Vocational Education; (2) provides guidance for individuals within the Division; (3) assures a level of achievement equal to an individuals competence; (4) indicates the results expected of each individual; and (5) assigns responsibility for the accomplishment of specified results.

Sample competencies in learning to utilize the MBO System are:

1. Write a mission statement for the Division of Vocational Education.

2. Identify key results to be included in statement of goals.

3. Write goals for a branch of vocational education within the Division.

4. Identify the functions of the various personnel of the branches of vocational education.

5. Write sample objectives for his/her particular functions in the branch.

MANAGEMENT INFORMATION SYSTEMS

A major element in the systemic adaption of research finding is the Management Information System (MIS) under development by the Division of Vocational Education assisted by a grant from U.S.O.E. The planning, development and implementation of this system will have data sources for student follow-up, fiscal accounting, teacher information systems, professional demand, student demand, manpower needs, curriculum development, and enrollment in vocational programs. These data can supply vocational leadership in all other systems with information for evaluation and decision making. This system, united closely with the management by objectives can assist vocational educators at all levels in decision-making concerning accountability and provide for constant monitoring recycling.

The MIS will provide decision makers with accurate, usable and timely data and information concerning input, output, and impact of vocational education.

Objectives established for MIS are:

1. Design a MIS embracing student accounting, fiscal accounting, manpower analysis and program evaluation.

2. Develop automated data collection and processing for: post-secondary enrollments, adult follow-up, Industrial Development Training, secondary program evaluation, and supply-demand interface.

3. Field test automated data processing of the following components: enrollment reports, secondary and post-secondary enrollment up-dating, annual teacher reports, technical college follow-up report.

TEACHER EDUCATION MODULES

The final element in the performance based system consists of plans to utilize the teacher education modules that have been developed, validated, and field-tested in a series of research studies conducted under the auspices of the Center for Vocational Education; The Ohio State University. The description of the development of the modules is presented in the companion publication, *Performance Based Instruction; Curriculum Development in Vocational Education; The State of the Art in Alabama* on pages 16-19.

The titles of the modules are presented in Figure 4 on the next page. The 100 modules that have been developed can provide valuable assistance to both pre-service and in-service programs of teacher education. The Center for Vocational Education visualizes the major features of the modules for PBTE Curricula as:

VOCATIONAL TEACHER COMPETENCY PROFILE

Name _____ Address _____

Institution _____ Date Started _____

Resource Person(s) _____

COMPETENCY RATING SCALE

1. Poor: The teacher is unable to perform this skill or has only very limited ability to perform it.
2. Fair: The teacher is unable to perform this skill in an acceptable manner but has some ability to perform it.
3. Good: The teacher is able to perform this skill in an effective manner.
4. Excellent: The teacher is able to perform this skill in a very effective manner.

PBTE

These competencies reflect actual module titles which have been developed on the basis of research conducted by Performance Based Curricula Program, The Center for Vocational Education, The Ohio State University, Columbus, Ohio 43210. August 1975

THE CENTER FOR VOCATIONAL EDUCATION

Category		Competencies										
A	Program Planning, Development, and Evaluation (11 modules)	A-1 Plan a Community Survey	A-2 Collect and Analyze Community Survey Data	A-3 Report and Use the Findings of a Community Survey	A-4 Organize or Reorganize an Occupational Advisory Committee	A-5 Maintain an Occupational Advisory Committee	A-6 Develop Vocational Education Program Goals and Objectives	A-7 Conduct an Occupational Analysis	A-8 Develop a Course of Study	A-9 Develop Long-Range Plans for a Vocational Program	A-10 Conduct a Student Follow-up Study	A-11 Evaluate Your Vocational Program
B	Instructional Planning (6 modules)	B-1 Determine Needs and Interests of Students	B-2 Develop Student Performance Objectives	B-3 Plan a Unit of Instruction	B-4 Write a Lesson Plan	B-5 Select and Obtain Student Instructional Materials	B-6 Prepare Teacher-Made Instructional Materials					
C	Instructional Execution (29 modules)	C-1 Direct Individual and Group Field Trips	C-2 Conduct Group Discussions, Panel Discussions, and Symposiums	C-3 Stimulate Learning through Brainstorming, Buzz Group, and Question Box Techniques	C-4 Direct Students in Instructing Other Students	C-5 Employ Simulation Techniques	C-6 Direct Student Study	C-7 Direct Student Laboratory Experience	C-8 Direct Students in Applying Problem-Solving Techniques	C-9 Direct the Project Method	C-10 Introduce a Lesson	C-11 Summarize a Lesson
	Instructional Execution (Cont'd)	C-12 Employ Oral Questioning Techniques	C-13 Employ Reinforcement Techniques	C-14 Provide Instruction for Slower and More Capable Students	C-15 Present Information through an Illustrated Talk	C-16 Demonstrate a Manipulative Skill	C-17 Demonstrate a Concept or Principle	C-18 Direct Individualized Instruction	C-19 Conduct Team Teaching	C-20 Present Information Using a Subject Matter Expert	C-21 Illustrate with Bulletin Boards and Exhibits	C-22 Illustrate with Models, Real Objects, and Flannel Boards
	Instructional Execution (Cont'd)	C-23 Present Information with Overhead and Opaque Materials	C-24 Present Information with Filmstrips and Slides	C-25 Present Information with Films	C-26 Present Information with Audio Recordings	C-27 Present Information with Televised and Video-taped Materials	C-28 Direct Programmed Instruction	C-29 Present Information with the Chalkboard and Flip Chart				
D	Instructional Evaluation (6 modules)	D-1 Establish Criteria for Student Performance in a Vocational Education Program	D-2 Assess Student Cognitive Performance	D-3 Assess Student Affective Performance	D-4 Assess Student Psychomotor Performance	D-5 Determine Student Grades in a Vocational Course	D-6 Evaluate Instructional Effectiveness					
E	Instructional Management (9 modules)	E-1 Project Instructional Resource Needs	E-2 Prepare Vocational Budgets and Reports	E-3 Arrange for Expanding Facilities and/or for Purchasing Supplies for the Vocational Program	E-4 Maintain a Filing System	E-5 Provide for the Safety Needs of Vocational Students	E-6 Provide for the First Aid Needs of Vocational Students	E-7 Assist Students in Developing Self-Discipline	E-8 Organize the Vocational Laboratory	E-9 Manage and Maintain the Vocational Laboratory		
F	Guidance (5 modules)	F-1 Select and Use Appropriate Student Data-Collection Sources and Techniques	F-2 Gather Student Data through Personal Contacts	F-3 Use Conferences to Help Students Meet Personal, Educational, and Vocational Needs	F-4 Provide Information on Educational and Career Opportunities	F-5 Assist Students in Applying for Employment or Further Education						
G	School-Community Relations (10 modules)	G-1 Develop a Plan for School-Community Relations	G-2 Give Presentations to School and Community Groups to Promote a Vocational Education Program	G-3 Provide Brochures to Inform the School and Community about the Vocational Education Program	G-4 Provide Displays in the School and Community on the Vocational Program	G-5 Prepare News Releases and Articles to Promote the Vocational Program	G-6 Plan, Develop, and Present Television and Radio Programs to Promote the Vocational Program	G-7 Conduct an Open House	G-8 Provide Service to and Maintain Liaison with Members of the Community	G-9 Cooperate with State and Local Educators	G-10 Obtain Feedback from the School and Community Concerning the Vocational Education Program	
H	Student Vocational Organization (6 modules)	H-1 Develop a Personal Philosophy toward Student Vocational Organizations	H-2 Establish a Student Vocational Organization	H-3 Prepare Students for Leadership Roles in the Student Vocational Organization	H-4 Assist Students in Developing and Financing a Yearly Program of Activities	H-5 Supervise Activities of the Student Vocational Organization	H-6 Provide Learning Experiences for Vocational Students through Contests					
I	Professional Role and Development (8 modules)	I-1 Keep Up-to-Date on Your Profession and on Your Occupational Specialty	I-2 Serve Your Teaching Profession	I-3 Establish and Maintain a Professional Philosophy of Education	I-4 Serve the School and Community	I-5 Select, Obtain, and Maintain a Teaching Position in Keeping with Your Professional Qualifications	I-6 Plan and Provide Laboratory Experiences for Prospective Teachers	I-7 Plan the Student Teaching Experience	I-8 Supervise Student Teachers			
J	Coordination (10 modules)	J-1 Establish Criteria and Guidelines for Operating a Cooperative Vocational Education Program	J-2 Establish and Apply Policies for Managing Student Attendance, Transfers, and Terminations	J-3 Identify and Enroll Prospective Students	J-4 Identify and Secure Prospective Training Stations	J-5 Place Students on the Job	J-6 Develop the Training Ability of On the Job Instructors	J-7 Coordinate and Supervise On the Job Instruction	J-8 Evaluate Students on the Job	J-9 Plan and Conduct Related Instruction	J-10 Conduct an Employer-Employee Appreciation Event	

Figure 4

1. Each module focuses upon one or more verified important vocational teacher competencies

2. Modular design provides maximum flexibility for designing individualized programs based on needs

3. Design of learning experiences allows for individual, small or large group instruction

4. All modules are suitable for pre-service and/or in-service use

5. Most modules are self-contained

6. Recommended optional outside resources include printed and multi-media materials

7. Design permits adaptation through use of situation specific local materials

8. Each module culminates with evaluation of the specified competency in an actual teaching situation.

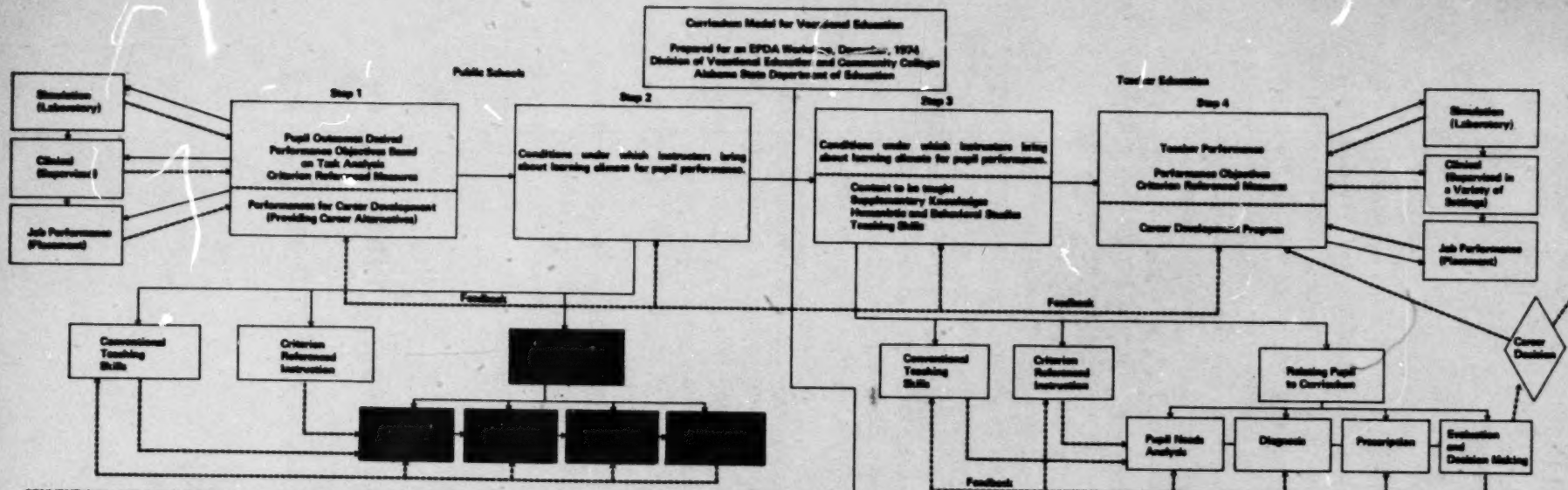
The Division of Vocational Education views the utilization of these modules, with the addition of other competencies inherent in the research based system described, as contributing to the development of performance based instructional systems. Plans are under development to conduct, under the auspices of the Center for Vocational Education, utilization workshops for teacher educators in the use of the modules.

The Systemic Design for Uniting the Research Based Elements

The system design developed by task forces uniting the various research elements is presented in Figure Five. The system uniting the elements for the systemic adaption of research findings follows an adaptation of the Comfield Model for competency based education as presented in Steps One, Two, Three, and Four.

Steps One and Two deal with public schools. Step One, Pupil Outcomes Desired, are the performance objectives derived from the research of the V-TECS Project and the performance objectives of the performance based catalogs. These performance objectives are to be demonstrated either in simulation or supervised clinical experiences and provide feedback through comprehensive placement for all exiting pupils.

Step Two, conditions under which instructors bring about learning climate for pupil performance, can be described in three ways: one, the improvement of conventional teaching skills through the utilization of the modules from the Center for Vocational Education and the competencies inherent in the ATLAS; secondly, the development of criterion referenced instruction in which the instruction takes the enabling objectives developed by V-TECS performance catalogs and develops PALA's for the achievement of the performance objectives. The third element, relating the pupil to the curriculum, relates to adapting the enabling objectives for utilizing diagnosis, prescription and evaluation especially for pupils who are having learning or behaviorial problems in acquiring the enabling objectives, either through criterion referenced instruction or conventional teaching. Further task analysis of objectives, already under way, adapt the V-TECS performance based catalogs to the needs of special education students. These elements, i.e., diagnosis, prescription and evaluation, thus relate to both special education components as well as utilizing the processes inherent in special education and vocational rehabilitation for relating the pupil to the curriculum for any pupil experiencing learning difficulties. This should assist in training vocational teachers in meeting the needs of pupils with unique needs. An essential part of the diagnosis, prescription and evaluation system is the Cognitive Style Mapping, the Model for Vocational Evaluation and AOIS, for relating the pupil to the curriculum.



CONVENTIONAL TEACHING SKILLS

1. Make large group presentations.
2. Utilize multi-media materials.
3. Conduct small group discussions.
4. Utilize norm-referenced instruction.
5. Questioning skills.
6. Sequencing Instruction
   - 6.1 Motor learning
   - 6.2 Sensation, Perception, Concept, Principle
   - 6.3 Concept Formation, Interpretation of Data, Application of Principles and Facts
   - 6.4 Knowledge, Comprehension, Application, Analysis, Synthesis, Evaluation.
7. Interpersonal Transactions
   - 7.1 Empathy training
   - 7.2 Respect training
   - 7.3 Concreteness and specificity of expression.
8. Developing and working with advisory committees.
9. Project method
10. Demonstration
11. Etc.

CRITERION REFERENCED INSTRUCTION

1. Write performance objectives.
2. Utilize task analysis techniques to order performances.
3. Write criterion referenced measures.
4. Order knowledge and sequence instruction.
5. Utilize a variety of media for self instruction.
6. Develop individual instructional patterns.
7. Develop instructional materials.
8. Provide alternate learning routes.
9. Keep records and develop system of classroom management.
10. Counsel with students.
11. Plan cooperatively with pupils.
12. Use small size instructional materials (several) instead of a single textbook.
13. Diagnose every behavior.
14. Develop competency attainment records.
15. Etc.

SKILLS FOR RELATING PUPIL TO CURRICULUM

1. Assess intellectual development of pupils (Piaget)
2. Diagnose every behavior.
3. Diagnose learning problems.
4. Diagnose self concept.
5. Diagnose pupil attitude.
6. Diagnose home-family relationship.
7. Relate academic curricula to personal needs.
8. Develop competency attainment records.
9. Develop teacher/counselor skills.
10. Diagnose academic deficiency.
11. Diagnose psycho-motor ability.
12. Etc.

SECONDARY SCHOOL CURRICULA OF THE 1980's

1. Communication
2. Human Relations
3. Environment
4. Skills for Survival (Career Roles-Alabama Concept)
5. Skills for Enjoying Life
6. Educational Expectations. (Passing ACT, Etc.)

EDUCATIONAL PROFESSIONAL DEVELOPMENT SKILLS NEEDED

1. To conduct task analysis for teachers.
2. Need observational systems.
3. To order tasks and knowledges leading to performance.
4. To write performance objectives.
5. To write criterion referenced measures; establish validity and reliability.
6. Develop individualized instructional approaches.

(ALTERNATE ROUTES OF INSTRUCTION)

7. Prepare multi-media approaches.
8. Develop competency attainment records.
9. Develop management systems.
10. Develop research procedures for the system.
11. Develop management systems.
12. Develop micro-teaching techniques for self analysis and self renewal.
13. Become familiar with commercial and protocol materials.
14. Develop skill in designing pupil needs assessment system.
15. Develop skill in interaction analysis.
16. Develop system of simulated, clinical, and placement for evaluation.
17. Develop system for continuous in-service for teacher educators and state staff based on research.
18. Assist in developing curricula for career education.
19. Etc.

Figure 5

Materials Utilized in Developing the Curriculum Model

Schalock's Scheme from the Cornfield Model, 1968

Stroebel, James H., *Development of a Course for Training Vocational-Technical Educators on the Effective Use of Criterion-Referenced Materials.* Final Report: Project No. 0-008, Grant No. OEC 0-70-4860 (Final) – Phase III, Washington, D.C. (April 30, 1972).

Butler, Colt F., *Instructional Systems Development for Vocational and Technical Training*

Brolin, Donn E., Proposal for *Project PRICE*, (A competency Based Career Special Education Curriculum Model for EMR Students)

Duffy, E.J., "Directions for Learning – We Have the Tools" in *The 80's, Where Will the Schools Be?* The National Association of Secondary School Principals, Reston, Virginia (1974).

Wiegand, James E., Editor, *Developing Teacher Competencies* (1971).

Steps Three and Four relate to the teacher education programs in the implementation of competency based teacher education, competency based instruction, utilizing the Center for Vocational Education modules, competencies derived from ATLAS and competencies from other elements of the system can provide a framework for deriving teacher competencies that are tied to the research base and which relate directly to pupil performance. These competencies can be utilized in both pre-service and in-service programs with on-site instruction in public schools.

Another element in the system is the interrelationship of related relevant academic learning for pupils in vocational programs or in career development programs. The block in Figure Five entitled "Secondary School Curricula of the 1980's" provides a constellation of academic structures that can lend support to the development of knowledges and skills that are related to vocational programs. The goals approach to performance objectives, described by McAshan, can provide a systematic approach for developing related academic learnings in academic education. Planned alternate learning activities can be developed to assist pupils in acquiring the skills that are needed in terms of their related academic learning for living and earning a living.

The Delivery System for Performance Based Instruction; Progress in Development

After the task forces, working collaboratively with the EPDA Staff, had defined the elements of the systemic adaption of research findings and completed the system for unifying the elements, the group designed the delivery system presented in Figure Six for the implementation of performance based instruction.

The delivery system provides EPDA Staff coordination in the in-service education of vocational personnel in leadership roles, i.e. teacher educators and state vocational staff. After the leadership had been trained in the various elements of the system, the EPDA staff would then coordinate the utilization of the trained leadership in developing competencies to criterion levels in elements of the system. The trained leadership would then train vocational administrators and cadres of teachers to competency levels in the system. Once the training of the cadres of vocational teachers had been completed, then these cadres of teachers would assist in training other vocational teachers in the elements of the system. Teacher educators and state staff would continue to assist the cadres of teachers in conducting training sessions. The EPDA staff assists in coordinating the efforts by assisting teacher educators and state vocational staff in developing competencies for the elements of the system, conducting needs assessment for retraining and recycling of all participants in personnel development, and continually monitoring and evaluating the effectiveness of the personnel development program.

Under the last two EPDA projects, i.e. 1975 and 1976, the following training programs in the elements have been accomplished, in addition to those described previously in this publication. During the first year the following training programs were initiated:

1. A total of 755 vocational personnel including State Vocational Staff; Vocational Teacher Educators; Local Vocational Directors; Area Vocational Center Administrators; and Deans and Presidents of Technical Colleges and Institutes; and

DELIVERY SYSTEMS FOR VOCATIONAL PERSONNEL DEVELOPMENT

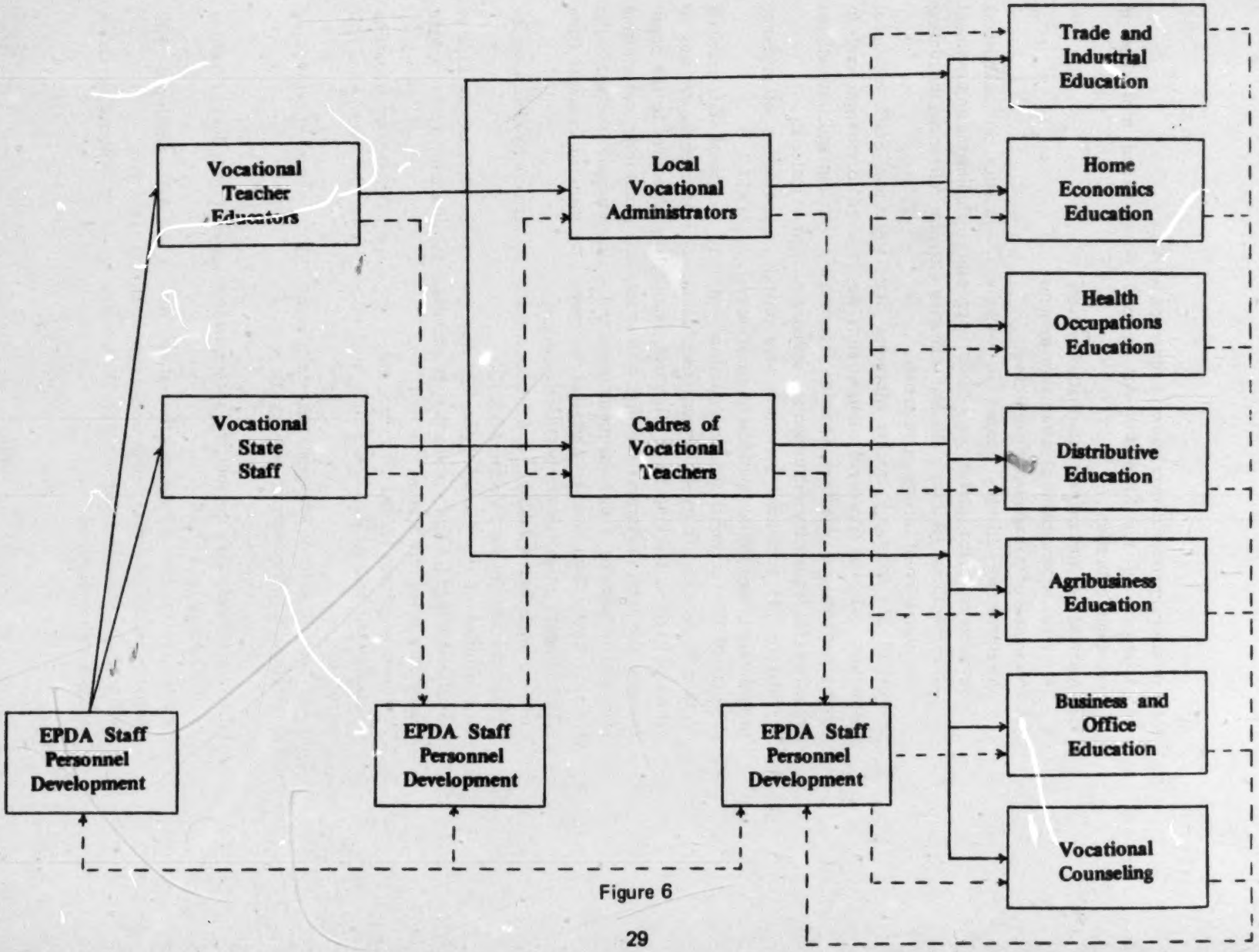


Figure 6

local vocational personnel were trained to criterion levels in:

1.1 Awareness of the State-of-the-Art in performance based instruction in vocational education

1.2 Awareness of management information systems

1.3 Awareness of occupational information systems

1.4 Awareness of management by objectives

1.5 Awareness of changes needed in vocational education in establishing competency based (performance based) approaches including the improvement of conventional teaching skills and managing criterion referenced instruction and utilization of curriculum materials.

2. A total of 228 vocational teacher educators, State Vocational Staff, vocational instructors, and local vocational administrators were trained to criterion levels in writing performance objectives, criterion referenced instruction and instructional procedures for sequencing instruction and utilizing curriculum materials.
3. A total of 145 vocational personnel were provided an overview of guidance procedures utilizing the occupational information system. (AOIS)
4. A total of 96 vocational teacher educators and state vocational staff received training in ATLAS. Thirty-six persons received six days of intensive training to criterion levels in teaching to an objective, relating the objectives to the pupil, engaging the pupil in learning activities with appropriate monitoring, and utilizing principles of learning. Diagnosis, prescription and evaluation were involved in the criterion levels. Two teacher education programs have included concepts from ATLAS in both pre-service and in-service programs.
5. Criterion levels were established and implemented in Management by Objectives for 165 members of the State Vocational Staff.
6. Two members of the Teacher Education Approval Agency attended six days of intensive training in ATLAS preliminary to encouraging institutions to move toward competency based certification.
7. Fifty-nine vocational teacher educators and state vocational staff were trained to criterion levels in Flanders' Interaction Analysis System for the improvement of instruction.

During the second year of implementing the research based system, the following personnel development activities were accomplished:

1. Fifty-nine teacher educators and state vocational staff received three days of training to criterion levels in ATLAS.
2. Twenty-five teacher educators and state vocational staff developed 100 competencies for pre-service and in-service components of the system.
3. Twenty-seven vocational teacher educators were trained to criterion levels in management by objectives.

4. Forty-six teacher educators and state vocational staff received three days of intensive training in *The Instructional Supervision Training Program.*
5. A Teacher Corps Proposal was written to assist in developing and implementing the research based system in a local school system. (Two EPDA sub-projects have been written and submitted so that, if the Teacher Corps Project is funded, there will be an intern at the University of Alabama in Birmingham in health occupation education and at the University of Alabama in vocational counseling. This will permit the involvement of all vocational service areas). The Teacher Corps proposal, if funded, will develop an exemplary, demonstration performance based instructional program with in-service education at the local school system level. It will also provide vocational teacher education programs the opportunity to develop performance based teacher education in vocational programs, developing competencies for pre-service and in-service education.
6. Five hundred trade and industrial teachers worked three days in utilizing curriculum materials from the V-TECS performance catalogs.
7. Six hundred home economics teachers received training in Flanders' Interaction Analysis System.
8. Thirty experienced teachers have received training in a pilot, team teaching competency based teacher education method course deriving competencies from ATLAS.
9. Cadres of 64 teachers, teacher educators and state supervisory staff have developed pilot efforts in utilizing curriculum materials in each service area.
10. Approximately 60 deans and presidents of technical colleges and institutes received training to criterion levels in utilization of curriculum materials and ATLAS.
11. Approximately eighty local vocational directors and area center administrators have received training to criterion levels in utilization of curriculum materials in ATLAS.

It is the plan of the Division of Vocational Education to continue the efforts to train educational leadership in the development of performance based instruction, and to continue to incorporate other elements in the system as new research leads the way to the improvement of vocational systems.